

### **REMARKS**

This Amendment responds to the Office Action mailed May 21, 2009. Claims 1-3 were pending for examination in the application. Claims 1 and 3 are amended to more particularly recite the invention. New claims 4-20 are added. No new matter is added by way of the claim amendments and the new claims. Thus, claims 1-20 are now pending for reconsideration.

#### ***Summary of the Office Action***

In the Office Action, claims 1-3 are rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Patent No. 2002-210494 to Kazuki *et al.* Claims 1-3 are further rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,884,344 to Yamashita *et al.* Claims 2 and 3 are further rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamashita.

#### ***Response to rejections under 35 U.S.C. § 102(b)***

In response to the Office Action, claim 1 is amended to clarify the location and function of the anion exchange resins. Specifically, claim 1 recites that the anion exchange resins are for ion exchange. Support for the amendment to claim 1 is provided in the specification, such as in paragraph [0016].

As described in the specification, the anion exchange resins of claim 1 provide the effect that “[d]ecomposition products such as carbon dioxide generated by oxidative degradation of organic compounds are absorbed and removed in the catalyst mixed tower located in the downstream of the organic-compounds oxidation equipment by anion exchange resins held within the tower. Therefore, an ultrapure water production plant according to this invention can produce highly purified ultrapure water even if the load caused by negative ion ingredients is high.” Paragraph [0016].

The specification further provides in paragraph [0046] that “[t]he oxidized water introduced into the catalyst mixed tower 4 contacts with the catalyst resins configuring the catalyst mixed bed, hydrogen peroxide etc. is decomposed and

removed, and carbonic acid ion etc. is removed by contact with strong base anion exchange resin.”

Although Kazuki (JP 2002-210494) describes a method to support palladium carried on an anion exchange resin in paragraph [0020] as pointed out by the Examiner, Kazuki does not disclose or teach “the catalyst mixed tower also having anion exchange resins for ion exchange” as recited in amended claim 1 of the present application. Accordingly, Kazuki cannot also provide the effects of amended claim 1.

Since Kazuki fails to disclose or teach the every limitation of amended claim 1 Applicants respectfully submit that the claim is allowable over Kazuki, and accordingly request withdrawal of the rejection under 35 U.S.C. § 102(b). Since claims 2 and 3 depend from claim 1, and therefore include the same claim limitations, Applicants respectfully submit that claims 2 and 3 are also allowable over Kazuki for at least the same reason as claim 1. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 2 and 3 under 35 U.S.C. § 102(b).

***Response to rejections under 35 U.S.C. § 102(e)***

Applicants respectfully traverse the rejections under 35 U.S.C. § 102(e). Yamashita (US 6,884,344) discloses a use of an ion exchange resin as a support only, which is described in lines 15 to 17 of column 7/\*. Yamashita also discloses “However, even when a material other than an ion exchange resin is employed as the carrier, impurities may be generated in a similar manner. Therefore, the present invention is not limited to a palladium catalyst wherein an ion exchange resin is used as the carrier, but may also be applied to the cases wherein an activated carbon, a synthetic adsorbent, or an inorganic exchanger is used as the carrier.” Yamashita, col. 7, ll. 20-2.

This disclosure in Yamashita does not disclose or teach “the catalyst mixed tower also having anion exchange resins for ion exchange” recited in amended

claim 1. Accordingly, Yamashita also does not disclose or suggest the structure or the effects of the structure recited in amended claim 1.

Applicants believe the Examiner's rejection of claims 2 and 3 under 35 U.S.C. § 102(e) is mistaken. This is because the Office Action only identifies matching disclosure for claim 1 and Yamashita does not disclose "the membrane degasser and a demineralization equipment are located in the downstream of the catalyst mixed tower" as recited in claim 2. Therefore, the Applicants respectfully submit that claims 2 and 3 are allowable over Yamashita for this additional reason. If the Examiner did intend to reject claims 2 and 3 under 35 U.S.C. § 102(e), Applicants respectfully request that the Examiner clarify those rejections.

Applicants respectfully submit that amended claim 1 is allowable over Yamashita, and accordingly request withdrawal of the rejection under 35 U.S.C. § 102(e). Since claims 2 and 3 depend from claim 1, and therefore include the same claim limitations, Applicants respectfully submit that claims 2 and 3 are also allowable over Yamashita for at least the same reason as claim 1. Additionally, Yamashita fails to disclose that the membrane degasser and a demineralization equipment are located in the downstream of the catalyst mixed tower as recited in claims 2 and 3. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 2 and 3 under 35 U.S.C. § 102(e).

***Response to rejections under 35 U.S.C. § 103(a)***

In the Office Action, claims 2 and 3 are rejected as being unpatentable over Yamashita on the basis that it would be obvious to modify the invention disclosed in Yamashita to provide an additional degasser downstream of the catalyst mixed tower because Yamashita discloses both that excessive amounts of gas in the liquid will interfere with wash treatment and that other treatment devices may be present between the catalyst mixed tower and the impurity removal device. Applicants respectfully traverse this rejection.

Claim 2, which depends from claim 1, recites “a membrane degasser and a demineralization equipment are located in the downstream of the catalyst mixed tower”. As described in the specification, claim 2 provides the effect that “gasses such as oxygen generated by decomposition of hydrogen peroxide etc. in the catalyst mixed tower can be removed by locating *a membrane degasser in the downstream of the catalyst mixed tower*. Also, ionic substances such as metal ions eluted from the membrane degasser can be removed; thus, highly purified ultrapure water, whose metal concentration is less than 1 ng/ L, can be produced.” Paragraph [0032] (emphasis added).

In contrast, Yamashita teaches that the degassing device should be located *upstream* of the hydrogen dissolving device located upstream of the palladium catalyst device. Yamashita discloses “*degassing is carried out prior to the hydrogen dissolving step*. It is preferable that the degassing is effected such that the concentration of one or more dissolved gases among the oxygen gas, nitrogen gas, and carbon dioxide gas becomes less than 10 ppm, more preferably, 2 ppm or less. When the concentration of the dissolved gas is 10 ppm or more, it is not possible to dissolve a sufficient amount of hydrogen during the hydrogen dissolving step and it is difficult to finely adjust the amount of dissolved hydrogen.” Yamashita, col. 6, ll. 1-10 (emphasis added).

Furthermore, a person of ordinary skill in the art would understand that Yamashita does not teach or suggest the membrane degasser of claim 2. The degasser of Yamashita is designed to work with a palladium catalyst device which produces water (H<sub>2</sub>O) from reacting hydrogen peroxide with hydrogen, as Yamashita described in lines 12 to 14 of column 7. Therefore, the membrane degasser of claim 2 which can remove oxygen generated by decomposition of hydrogen peroxide is not an appropriate solution to “excessive amounts of gas in the liquid.” Therefore, Yamashita fails to suggest a modification to the disclosed invention in the manner suggested in the Office Action. Thus, there is no basis

other than impermissible hindsight for modifying the teachings of Yamashita that would yield the invention recited in claim 2.

Because Yamashita does not teach or suggest a downstream membrane degasser, Applicants respectfully submit that claim 2 is allowable over Yamashita, and accordingly request withdrawal of the rejection under 35 U.S.C. § 102(a). Since claim 3 depends from claim 2, and therefore includes the same claim limitations, Applicants respectfully submit that claim 3 is also allowable over Yamashita for at least the same reason as claim 2. Accordingly, Applicants respectfully request withdrawal of the rejection of the claims under 35 U.S.C. § 103(a).

***New claims 4-20***

New claims 4-20 are fully supported by the specification in the drawings and throughout the description of the drawings, as well as the original claims. In particular:

Claim 4 finds support in paragraph [0018].

Claim 5 finds support in paragraph [0018].

Claim 6 finds support in paragraph [0020].

Claim 7 finds support in paragraph [0020].

Claim 8 finds support in paragraph [0021].

Claim 9 finds support in paragraph [0021].

Claim 10 finds support in paragraph [0022].

Claim 11 finds support in paragraph [0019].

Claim 12 finds support in paragraph [0019].

Claim 13 finds support in paragraph [0019].

Claim 14 finds support in paragraph [0017].

Claim 15 finds support in paragraph [0017].

Claim 16 finds support in paragraph [0017].

Claim 17 finds support in paragraph [0016].

Claim 18 finds support in paragraph [0023].

Claim 19 finds support in paragraph [0023].

Claim 20 finds support in paragraph [0038].

Since each of new claims 4-20 depend directly or indirectly from claim 1, Applicants respectfully submit that new claims 4-20 are allowable over Kazuki and Yamashita for at least the same reasons as discussed above with respect to claims 1-3.

### **CONCLUSION**

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is now in condition for allowance, and request that a notice of allowance be forthcoming. The Examiner is invited to contact the undersigned for any reason related to this case.

Applicant believes that no fee is required with this submission. Nevertheless, the Commissioner is authorized to charge any necessary fees to USPTO Deposit Account No. 50-3869.

Respectfully submitted,



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